Translation

PCT/EP2003/007425

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference D80276PC	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP2003/007425	International filing date (*day/month/year*) 09 July 2003 (09.07.2003)	Priority date (*day/month/year*) 11 July 2002 (11.07.2002)
International Patent Classification (IPC) or national classification and IPC A61L 15/22		
Applicant STOCKHAUSEN GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the report
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
06 February 2004 (06.02.2004)	10 November 2004 (10.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP2003/007425

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:

pages 1-51, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:

pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages 1-16, filed with the letter of 02 July 2004 (02.07.2004)

☐ the drawings:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☐ the sequence listing part of the description:

pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

** Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

*** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 03/07425

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO
Inventive step (IS)	Claims	1-16	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations

1). The set of claims (claims 1-16) submitted with the fax of 2 July 2004 is based on the originally filed claims and on the description (pages 18 to 20, as indicated in the fax).

2). The present application includes a method for the production of water-absorbing, foam-type polymer structures corresponding to the composition as per claim 1 (and following claims 2-4), the products obtained therefrom (claims 5-7), a composite containing said polymer structure (claims 8, 14), the method for producing a composite as per claim 8 (claims 9-13), the use of said polymer structure or composite in chemical products (claim 15) and chemical products based on a polymer structure or composite of the preceding claims (claim 16).

D3, WO-A-97/17397, which is cited in the present application, discloses water-absorbing, foam-type **crosslinked polymers** containing a) acid-group-containing monoethylenically unsaturated monomers (acrylic acid), b) other monoethylenically unsaturated monomers (salts of acrylic acid), crosslinking agents, d) initiators, for example radicals and hydrogen peroxide, e) one or more

surfactants, f) optionally, a solubilizer and g) thickeners, foam stabilizers, polymerization-control agents, fillers and/or cell-nucleation agents (see the abstract, claims 1-5, 15 and 16).

3). Following a detailed study of the arguments submitted by the applicant, it must be assumed that D3 relates to a method in which a polymerizable aqueous monomer solution and **not an aqueous solution in which a polymer is already present** is foamed in the presence of a crosslinking agent and polymerization is then initiated in the polymer foam.

Given the different method for the production of the water-absorbing, foam-type polymer structures, corresponding differences also arise in the polymer structures obtained by the present method. However, the polymers used in the present method are already polymerized but non-crosslinked polymers that were obtained by polymerization in the absence of a crosslinking agent. This type of polymerization takes place without gel formation and the residual monomer content is distinctly lower. The water-absorbing, foam-type polymer structures in the current product claim 7 are distinguished in that they exhibit absorbency of at least 10 g/g at a pressure of 0.3 psi and an absorption rate of at least 2 g/(g.s). In view of the above-mentioned production method, this combination cannot be derived from the method disclosed in D3.

4). The subject matter of the current claims 1-16 is therefore considered to be **novel in relation to D3 (PCT Article 33(2))**. Novelty in relation to D1 and D2 has already been acknowledged in the written report.

5). In the present method, a non-polymerizable composition consisting of a polymer and a crosslinking agent is foamed and then crosslinked by heating, whereas in D3 a polymerizable monomer solution containing all the components necessary for polymerization is foamed and then polymerized. As a result, in the present method the foamed composition is crosslinked only if heat is supplied and therefore the composition can be spread on a substrate in a controlled manner in any desired atmosphere and then crosslinked to form a water-absorbing foam. The polymer composition known from D3, on the other hand, requires for polymerization only a functioning initiator system; this presupposes the need for an inert gas atmosphere for polymerization of the foam and entails the risk of uneven spreading of the foam on a substrate.

Since neither documents D1 and D2, which are already mentioned in the written report, nor the above-mentioned document D3 disclose a method in which, instead of a polymerizable monomer solution, a solution containing a non-crosslinked, but crosslinkable, polymer is foamed and the resulting polymer is then crosslinked in the foamed solution, **the present method can be considered inventive in relation to the cited prior art (PCT Article 33(3)).** This applies also to the resulting water-absorbing polymer structures of the independent following claims 5 and 7, and to the subject matter of the following claims 2-4, 6 and 8-16.

6). The documents WO-A-96/21181 and WO-A-88/0981 which are cited in the application do not appear to concern the field of polymer foams.